

DRAINAGE STRATEGY REPORT

PROPOSED MIXED COMMERCIAL & RESIDENTIAL DEVELOPMENT

BOARSHAW RD & CLOUGH STREET MIDDLETON MANCHESTER M24 2WQ

Author: Daniel Slattery
Client: Mr Zulqurnain Shah
Reference: rep-tjba-shah-boarshaw rd & clough st-DSR-070725.docx

Revision	Date	Reason
0	Aug 2025	Original to address planning condition.

T J Booth Associates.
20A Eastgate St,
Rochdale,
Lancs,
OL16 1DH.
Tel: 01706 868288.
Email: office@tjba.co.uk

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1 Introduction.

1.1 Purpose of Assessment.

The primary purpose of this report is to identify drainage strategy from the proposed development.

The site has an approved outline planning permission, ref: 24/00646/OUT, for the: "erection of a two storey building comprising of a retail unit at ground floor and one, two bedroom apartment at first floor".

It also has a more recent reserved matters application for the same, under planning ref: 25/00177/REM.

As part of the reserved matters decision notice, there was a condition relative to SUDS assessment of the site:

- 2 Prior to the commencement of development, details of a sustainable surface water drainage scheme and a foul water drainage scheme shall be submitted to and approved in writing by the Local Planning Authority. The drainage schemes must include:
- (i) An investigation of the hierarchy of drainage options in the National Planning Practice Guidance (or any subsequent amendment thereof). This investigation shall include evidence of an assessment of ground conditions and the potential for infiltration of surface water in accordance with BRE365;
 - (ii) A restricted rate of discharge of surface water agreed with the local planning authority (if it is agreed that infiltration is discounted by the investigations);
 - (iii) Levels of the proposed drainage systems including proposed ground and finished floor levels in AOD;
 - (iv) Incorporate mitigation measures to manage the risk of sewer surcharge where applicable; and
 - (v) Foul and surface water shall drain on separate systems.

The approved schemes shall also be in accordance with the Non-Statutory Technical Standards for Sustainable Drainage Systems (March 2015) or any subsequent replacement national standards.

Prior to occupation of the proposed development, the drainage schemes shall be completed in accordance with the approved details and retained thereafter for the lifetime of the development.

The Site will be assessed in accordance with the national drainage hierarchy for surface water disposal & exceedance characteristics, also considering the proposed end adopters and their requirements.

Regarding Site assessment, this report will appraise the existing and local drainage infrastructure, assess the suitability of the proposed development, giving recommendations for drainage design & management, specifically for approval of the LLFA/EA/sewerage undertakers, as applicable.

Drainage from new developments is to be designed to follow the national drainage hierarchy for surface water discharge to the following networks in order of preference:

- infiltration.
- Watercourse.
- surface water sewer.
- combined sewer.

Flow rates (existing & proposed) are to be estimated for approval using the following methodology:

- Development should aim to deliver greenfield runoff on greenfield sites up to a 100yr rainfall event, considering climate change.
- Development should aim for a minimum reduction in surface water runoff rates of 50% for Brownfield sites on a 1yr rainfall event.
- Development should be designed so that there is no flooding to the development in a 30yr event, and so that there is no property flooding in a 100yr event considering climate change.

1.2 LLFA Consultation.

No consultations at the time of writing.

1.3 LPA Planning.

No planning comments at the time of writing.

2 Site Proposals.

2.1 Location Plan.

See Location Plan in Appendix showing the area features.

The site is located in a predominantly residential part of Middleton, surrounded by small buildings, generally residential dwellings and residential commercial amenities.

The site is situated in a small relatively shallow valley, with Whit Brook 80m west.

2.2 Site Plan.

Refer to Existing & Proposed Plans in the appendix.

The site is currently a vacant plot of land comprising an unmade hardcore surface. It is situated on the corner of Boarshaw Road, and Clough street.

Existing site areas are as follows:

Ex hardstandings/impermeable area	0 sqm.
Soft landscaping/permeable area	153 sqm.
Total area	153 sqm.

The proposal is for the construction of 1No two-storey masonry building. It will have a shop on the ground floor accessed from the front of the building via Boarshaw Road.

There will be a two bedroomed flat to the 1st floor, accessed via a separate entrance staircase to the rear of the building.

The plot is small and there is little external space. There will be enough room around the perimeter of the building for a pathway only, and two car parking spaces.

Proposed site areas are as follows:

Building footprint (impermeable)	81 sqm.
Proposed path & driveway (permeable)	72 sqm.
Total area	153 sqm.

2.3 Derivation of Data, Surveys and Models.

2.3.1 Existing and proposed topography.

A topographic survey has been undertaken. The site is generally level, with a gentle gradient from east to west in the order of 92.60 to 92.20m aOD.

2.3.2 Geology.

BGS Maps record the superficial cover to be glaciofluvial sand & gravels.

2.3.3 Drainage Surveys.

N/A – not yet undertaken.

2.3.4 Sewer Undertaker Records.

United Utilities records have been obtained for the local area.

The records show only combined drainage in the area local to the site with 2No. 225 diameter combined sewers flowing down Boarshaw Road before combining into a larger sewer.

There is combined drainage to the rear of 209 to the west of the site, although this flows away from the Application Site.

There is also rear combined drainage to the rear of 215-225 Boarshaw Road 9 (to the east), which flows through the rear gardens towards Clough Street and the Application Site.

It is assumed this flows to Clough Street and then out through Clough Street to the sewer main in Boarshaw Road.

Refer to UU sewer plan excerpt below:



2.3.5 BGS Borehole Records.

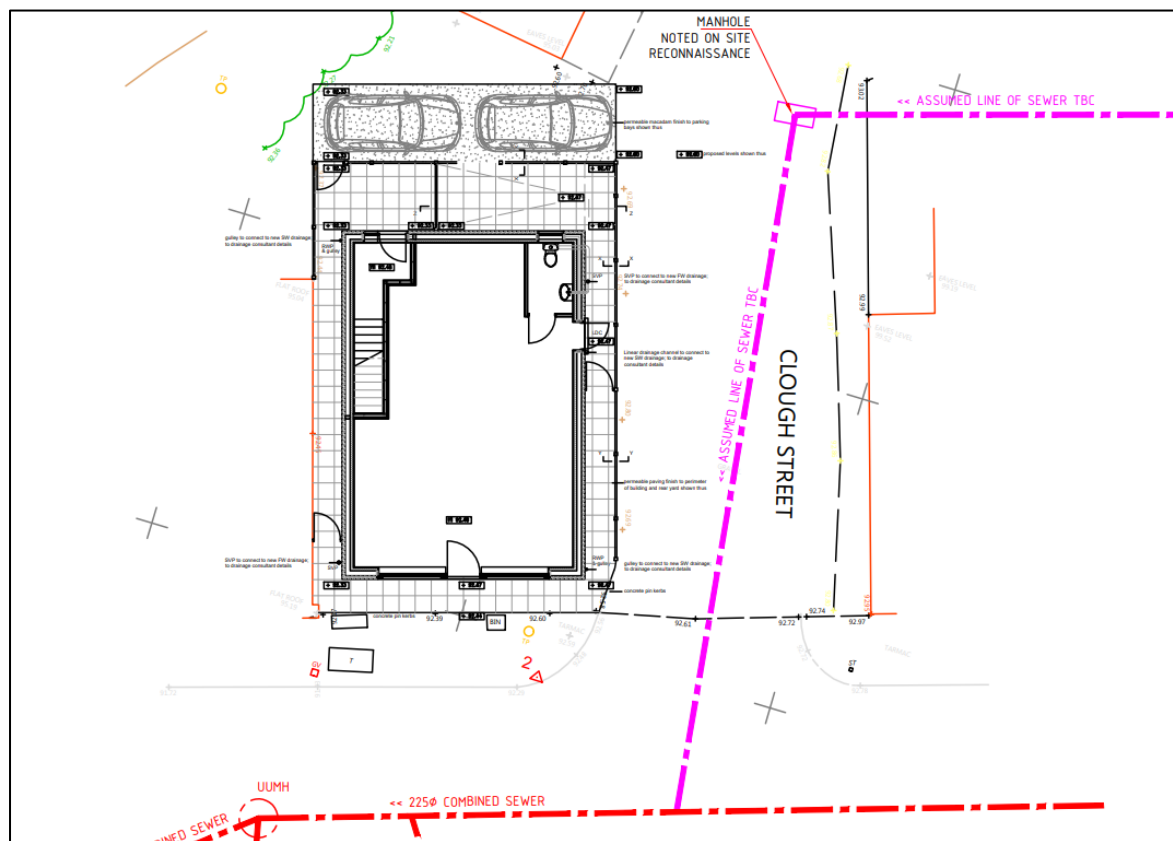
No relevant boreholes in close proximity to the Site.

2.3.6 Site Investigations.

No site investigation information has been obtained to date.

2.3.7 Site Reconnaissance.

A site visit was undertaken in August 2025. A manhole was noted to the rear corner of No215 Boarshaw Road on the opposite site of Clough Street. It is assumed this manhole picks up drainage from the rear of Nos. 215-225 Boarshaw Road, and then flows through Clough Street out to the sewer main in Boarshaw Road.



3 Drainage Strategy.

3.1 Existing Site rainfall & drainage systems.

There is no known Site drainage.

Local rainfall characteristics are as follows:

M5-60 rainfall depth (mm) 	20 
'r' ratio M5-60 / M5-2day 	0.3 
FEH/FSR conversion factor 	1.12
Hydrological region 	10

DESIGN RAINFALL 1YR (THE WALLINGFORD PROCEDURE)

Design rainfall in accordance with the Wallingford Procedure

Tedds calculation version 2.0.02

Design rainfall intensity

Location of catchment area	Other
Storm duration	D = 30 min
Return period	Period = 1 yr
Ratio 60 min to 2 day rainfall of 5 yr return period	r = 0.300
5-year return period rainfall of 60 minutes duration	M5_60min = 20.0 mm
Increase of rainfall intensity due to global warming	p _{climate} = 0 %
Factor Z1 (Wallingford procedure)	Z1 = 0.77
Rainfall for 30min storm with 5 year return period	M5_30min _i = Z1 ' M5_60min = 15.4 mm
Factor Z2 (Wallingford procedure)	Z2 = 0.62
Rainfall for 30min storm with 1 year return period	M1_30min = Z2 ' M5_30min _i = 9.6 mm
Design rainfall intensity	I _{max} = M1_30min / D = 19.1 mm/hr

DESIGN RAINFALL 30YR (THE WALLINGFORD PROCEDURE)

Design rainfall in accordance with the Wallingford Procedure

Tedds calculation version 2.0.02

Design rainfall intensity

Location of catchment area	Other
Storm duration	D = 30 min
Return period	Period = 30 yr
Ratio 60 min to 2 day rainfall of 5 yr return period	r = 0.300
5-year return period rainfall of 60 minutes duration	M5_60min = 20.0 mm
Increase of rainfall intensity due to global warming	p _{climate} = 0 %
Factor Z1 (Wallingford procedure)	Z1 = 0.77
Rainfall for 30min storm with 5 year return period	M5_30min _i = Z1 ' M5_60min = 15.4 mm
Factor Z2 (Wallingford procedure)	Z2 = 1.53
Rainfall for 30min storm with 30 year return period	M30_30min = Z2 ' M5_30min _i = 23.5 mm
Design rainfall intensity	I _{max} = M30_30min / D = 47.1 mm/hr

DESIGN RAINFALL 100YR (THE WALLINGFORD PROCEDURE)

Design rainfall in accordance with the Wallingford Procedure

Tedds calculation version 2.0.02

Design rainfall intensity

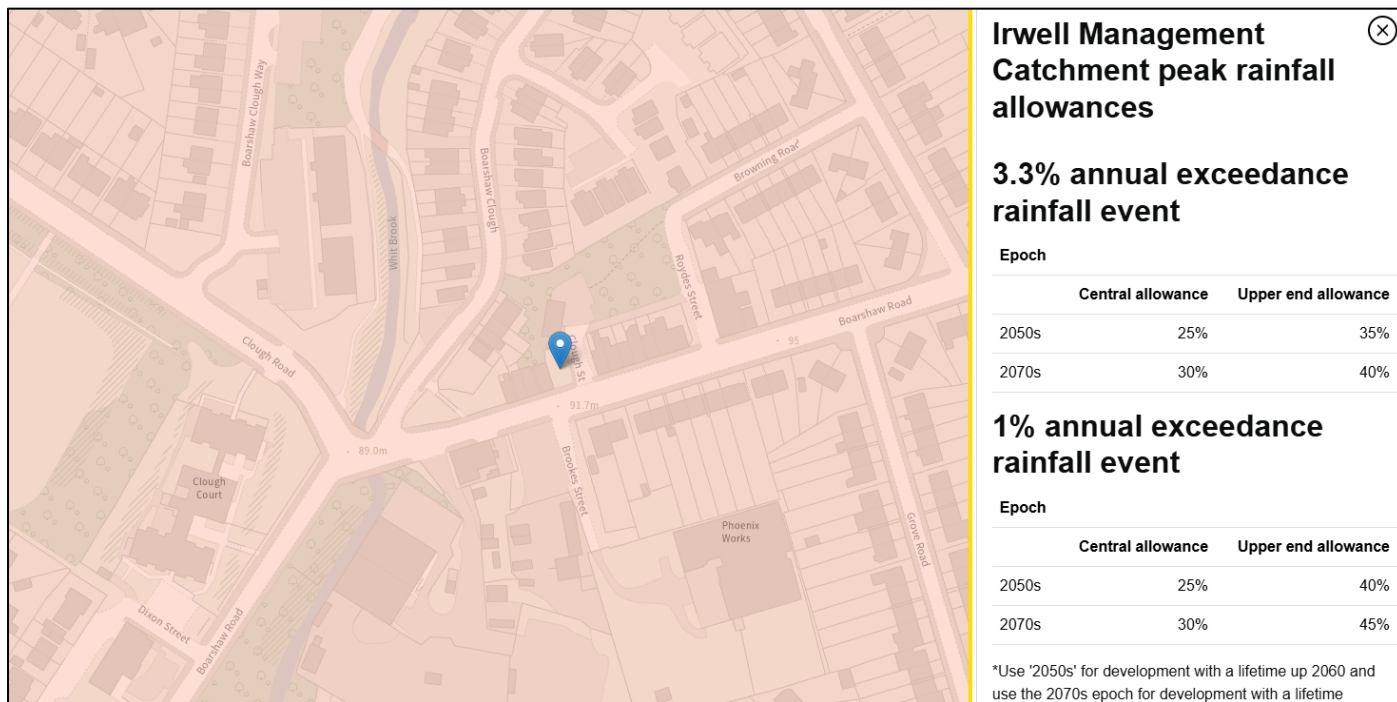
Location of catchment area	Other
Storm duration	D = 30 min
Return period	Period = 100 yr
Ratio 60 min to 2 day rainfall of 5 yr return period	r = 0.300

5-year return period rainfall of 60 minutes duration
 Increase of rainfall intensity due to global warming
 Factor Z1 (Wallingford procedure)
 Rainfall for 30min storm with 5 year return period
 Factor Z2 (Wallingford procedure)
 Rainfall for 30min storm with 100 year return period
 Design rainfall intensity

M5_60min = **20.0** mm
 $p_{climate} = 0\%$
 $Z1 = 0.77$
 $M5_{30min_i} = Z1 \cdot M5_{60min} = 15.4$ mm
 $Z2 = 1.99$
 $M100_{30min} = Z2 \cdot M5_{30min_i} = 30.7$ mm
 $I_{max} = M100_{30min} / D = 61.4$ mm/hr

3.2 Rainfall Climate Change Impacts.

Climate change allowances to peak rainfall intensity are given nationally across the whole of England, based upon river management catchment areas. Refer to graphic:



Given the proposed use is both commercial and residential, the worst case residential supersedes, and the 2070s epoch is considered suitable for climate change estimation cross referenced with the central allowance potential; which suggests the following allowance to be used:

30yr rainfalls +40% climate change allowance.

100yr rainfalls +45% climate change allowance.

3.3 Proposed Surface Water Drainage.

3.3.1 Infiltration.

BGS maps suggest the majority of the Application Site is underlain by glaciofluvial sand & gravels.

There site area is small, with the site boundaries maximum 4.8m away from the foundation lines. Therefore, in accordance with UK Building Regulations, there is no suitable area around the development within the site boundaries for a traditional soakaway for roof areas. Because of this, the roof areas will have to discharge to the local combined sewer.

However, all external areas (surrounding pathway and car parking) can comprise permeable paving to reduce the reliance on sewers.

3.3.2 Watercourse.

The closest watercourse is approximately 80m away, and it wouldn't be feasible to discharge via this method.

3.3.3 SW Sewer.

None available.

3.3.4 Combined Sewer.

Surface water from roof areas only should connect to the public sewer.

Max surface water flows to the UU sewer will be minimal as follows:

MODIFIED RATIONAL METHOD					
Client:	Mr Zulqurnain Shah.				
Site:	Boarshaw Rd & Clough Street, Middleton.				
PEAK RUNOFF RATE ESTIMATION					
in accordance with CIRIA C753, pgs 519-520, EQ. 24.5					
modified rational method	$Q = 2.78 C i A$		return period (Tr)	rainfall mintensity (mm/hr)	runoff rate (l/s)
site area:	81	sqm	1yr	19.10	0.43
	0.0081	Ha	30yr	47.10	1.06
volumetric runoff coefficient Cv:	1		100yr	61.40	1.38
dimensionless routing coefficient Cr:	1		30yr+40%	65.94	1.48
runoff coefficient C (Cv x Cr):	1		100yr+45%	89.03	2.00
rainfall intensity assumptions:					
1yr rainfall	19.1	mm/hr	synthetic 1yr TEDDS calculation		
30yr rainfall	47.1	mm/hr	constant lower intensity estimation, CIRIA C753		
100yr rainfall	61.4	mm/hr	constant upper intensity estimation, CIRIA C753		
development type	residential	enter commercial/aggricultural or residential			
30yr rainfall climate change allowance	40	%	0.4	ratio	
100yr rainfall climate change allowance	45	%	0.45	ratio	

3.4 Proposed Foul Water Drainage.

To connect to the existing combined sewer.

3.5 Adoption.

The drainage systems drainage will remain private.

3.6 Maintenance.

None required.

4 Conclusion & Residual risks.

Proposed roof drainage and foul to connect to the combined sewers in the vicinity of the site.

All external areas should comprise permeable paving.

The site is simple and small in area, so no detail design work should be required.

However, the existing sewers around the site should be surveyed for connection.

Once obtained, a standard connection to the United Utilities network will be required, and part 1 application for the connection to be obtained prior to connection.

Signed.....  .

D.S. Slattery BSc (Hons).

T J Booth Associates.

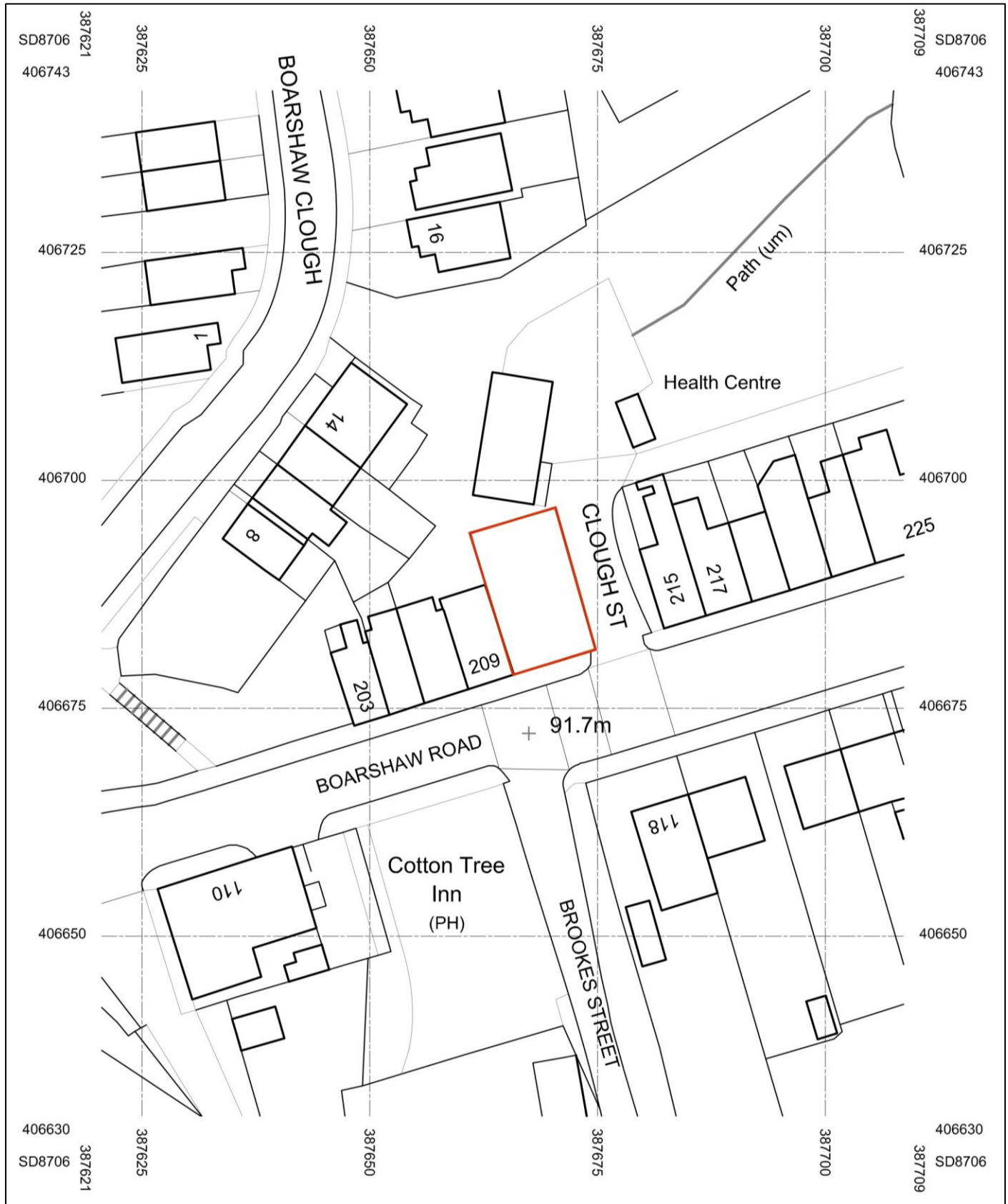
Authorised...  .

T J Booth BSc (Hons), C. Eng. C. Env. MICE.

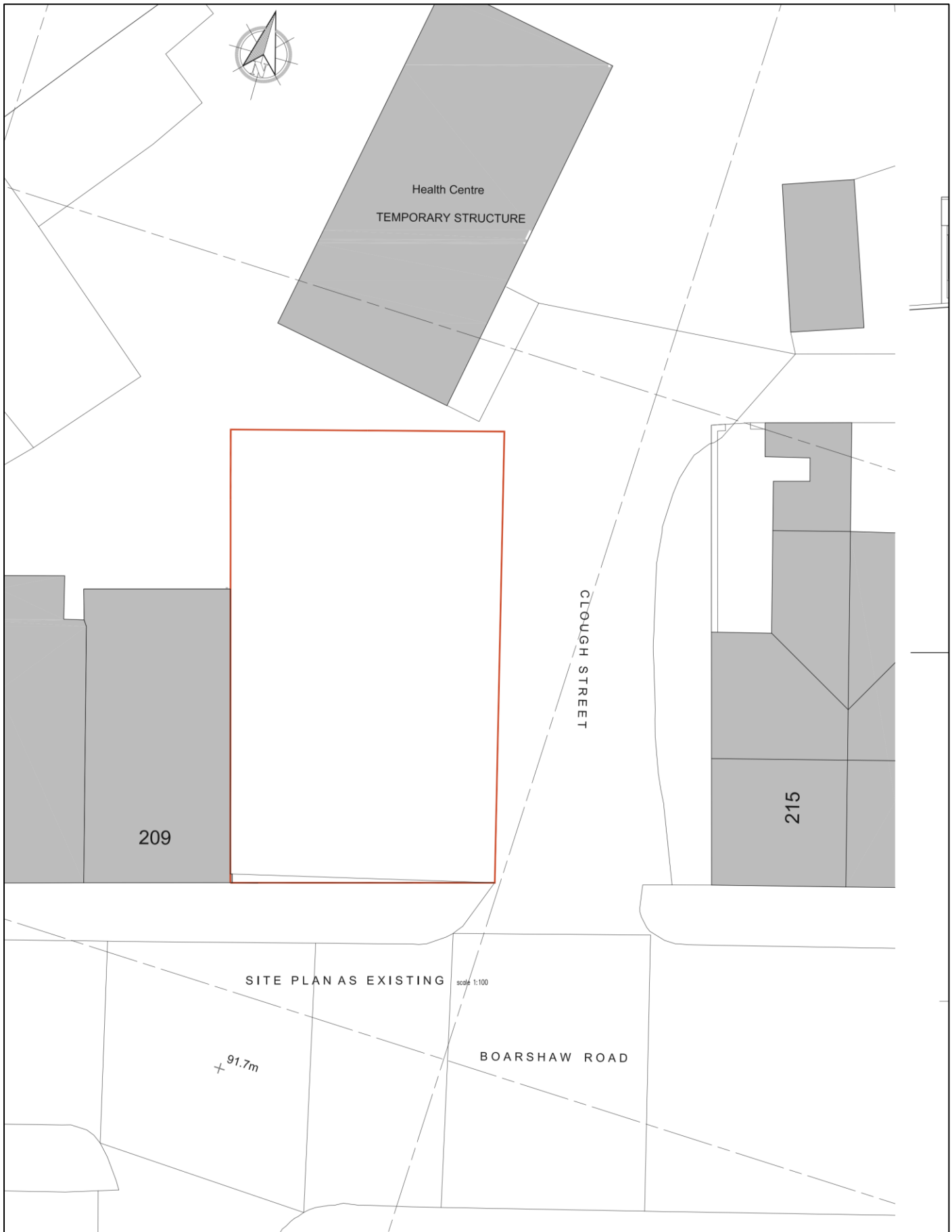
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5 Appendix.

5.1 Location Plan.



5.2 Existing Plans/Topographic Survey.



5.3 Proposed Site Plan.

